

1145-17-2518

Antun Milas, Michael Penn* (mpenn@randolphcollege.edu) and **Joshua Wauchope.**

Permutation Orbifolds of Fermion Vertex Superalgebras.

Invariant subalgebras of free fields vertex algebras and superalgebras are rich sources of interesting simple vertex algebras. There is already a substantial body of work on this subject, especially from the perspective of W -algebras. These approaches are primarily based on classical invariant theory. When it comes to permutation orbifolds (fixed under the *full* symmetric group S_n) very little is known except for $n = 2$, except for recent work of the first two authors describing the rank 3 Heisenberg permutation orbifold. We extend this work and describe the structure of the permutation orbifold of the rank three free fermion vertex superalgebra (of central charge $\frac{3}{2}$) and of the symplectic fermion vertex superalgebra (of central charge -6). In the case of the free fermion algebra, we prove an isomorphism between the orbifold and a subalgebra of a lattice vertex algebra. (Received September 25, 2018)